

6. IMPLEMENTATION AND OPERATION



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*Hot air balloon crashes into power line above I-64,
backing up traffic in westbound lanes.*

6. IMPLEMENTATION AND OPERATION

This chapter presents a review of actions and issues related to implementation of the recommended system. Necessary agreements and memorandums of understanding are identified and legislative issues related to selected incident management actions are reviewed. Procurement methods, system start-up plan requirements, and operations plan requirements are also addressed.

6.1 Agreements and Memorandums of Understanding

In order to be effective, the proposed incident management system must be conceived and operated in a cooperative effort by multiple state and municipal agencies. Generally, its purpose is to be responsive to traffic and incident conditions without regard to jurisdictional boundaries.

The system will be designed as a unit, but it must operate in the context of decentralized functions and responsibilities. Since it will support and enhance current functions, the cooperative relationships established for its operation will extend beyond its functions of incident detection, incident response, and motorist information. The system will serve as an effective catalyst to communication among agencies involved in incident response.

A series of agreements and memorandums of understanding will be necessary to establish and support the incident management system. These will be developed over a period of time as an ordinary part of system development. Multiple agreements or memorandums are advisable in lieu of a single document to provide flexibility for responding to future needs.

Potential needs for cooperative agreements or memorandums of understanding are reviewed below, according to four categories:

- Agency Support
- System Construction, Operations, and Maintenance
- Emergency Response
- Specialized Control Plans

Agency Support

One of the first documents to be executed should be a joint statement of support for improved incident management systems and operations within the Metropolitan Louisville area. This should be a statement of policy, with specific roles and responsibilities to be identified in follow-up documents. This agreement should provide a statement of goals and objectives in support of a cooperative policy.

The agency support statement should be signed by governors of both states and elected officials for affected jurisdictions. This document will serve to inform the public of intent and

commitment to the system, and will provide general guidance (through goals, objectives, and policies) for further system development.

To best serve its intended purpose, execution of the agency support agreement should be well publicized. This should include formal signing ceremonies by city and state officials and broad media coverage. In addition to indicating support and cooperation of involved jurisdictions, this will provide an early opportunity for public education regarding the character and intent of the system.

System Design, Construction, Maintenance, and Operations

Agreements will be necessary among participating jurisdictions and agencies to establish and operate the incident management system. These will be within the categories of: funding, system operation and maintenance, and functional roles and responsibilities. Among the topics which should be addressed are the following:

- Funding
 - engineering
 - construction
 - start-up
 - operations
- System Operation and Maintenance
 - control center
 - field equipment
 - administration and management
 - staffing
- Functional Roles and Responsibilities
 - communication responsibilities of traffic control center
 - on site coordination (incident manager, call for tow trucks, etc.)
 - role and limitations of service patrols
 - identification and management of diversion route systems
 - operation of variable message signs and motorist information systems
 - data links (CCTV, traffic counts, operating speeds, etc.)

Emergency Response

The City of Louisville currently has two private wrecker service contracts. These include a wrecker service contract for light vehicles and one for auxiliary vehicles. These contracts are annual with the City reserving the right to renew for up to five years. Both contracts state general requirements:

- 24-hour telephone service with dispatcher, no answering service
- All wreckers and equipment available 24 hours
- Commercial radio dispatched
- Maintenance of equipment in compliance with all Federal and state laws
 - Name clearly painted on each side of the wrecker
- Response time to be reasonable, 30 minutes for city runs
(if equipment is not available, contractor to advise the radio room)
- All calls for service must originate through the authorized police dispatcher

Both contracts detail equipment required to be maintained by the contractor.

Recommendations for revisions to the current City of Louisville wrecker contracting procedures come from the Towing & Recovery Association of Georgia that developed a list of suggestions to be included in a model contract dealing with incidents on interstates. These suggestions, presented in the Incident Management Workshop Handbook, 1993, U.S. DOT, includes the establishment of response time zones. Where more than 10-minute run time is incurred, prepositioning can be encouraged. The contracts need to be specific so as to create an average run time of 10 minutes or less during rush hour periods. Other suggestions include the development of a certification for wreckers service personnel, the development of incident management teams, the need for centralized dispatch and the placement of emergency call-boxes.

Agreements, legislation, and cooperative understandings are already in place for the coordination of incident response. Changes may occur as emergency response personnel interact within the incident management committee, but the system will not supplant or modify most established relationships. Some potential new emergency response policies may require enabling legislation, including:

- Vehicle removal policies
- Lane closure policies
- Tow truck notification policies
 - "Lights off" policies
- Accident investigation sites/policies

Specialized Control Plans

In addition to agreements and/or memorandums of understanding for day-to-day system operations and emergency response, it may be useful to establish roles, responsibilities, and relationships for special conditions. These include the following, as a minimum:

- Recurring special events (Kentucky Derby, Thunder over Louisville)
- Unique special events (major festivals, presidential visit)
- Maintenance of traffic during construction
- Special incidents, such as HAZMAT spills

Preparation of Agreements and Memorandums of Understanding

The first agreement to be executed should be the agency support agreement. Once this document is in place, remaining agreements and memorandums of understanding should be prepared by or through the incident management committee. This process should begin during the system design phase and continue through system start-up and operations phases.

6.2 Legislative Review

Several of the incident management initiatives presented in Chapter 4 are related to responsibility for facilities or the actions of motorists or emergency response personnel following an incident. Some of these actions are influenced by legislation, as discussed in this section.

Kentucky

Kentucky Statute 189.233 states that the Commissioner of Highways is responsible for maintaining the state highway system.

Kentucky Statute 189.450 states that a disabled vehicle will not remain on the shoulder of a state maintained highway for more than 24 hours. After 24 hours, the police have the authority to have that vehicle towed. Also, no vehicle may park, stop or stand on the shoulder of any interstate highway, including ramps, except in the case of an emergency. In addition, a police officer may have any vehicle removed that is unattended on a bridge or causeway or in a tunnel if it is obstructing traffic.

Typically, Louisville Division of Police personnel call for their own tow trucks except when heavy vehicles are involved. In those cases, heavy duty wreckers are called for from private contractors.

Two statutes deal with responsibilities of drivers in an accident. The first, Statute 189.580, states that the operator should stop and determine the amount of damage or injury; give assistance to or make arrangements for the injured; and, if requested, give the vehicle registration number and names and addresses of all occupants of the vehicle. Any accident resulting in death, injury or damage greater than \$200 must be reported to the justice department within 10 days. The second regulation, Statute 189.635, states that drivers involved in accidents resulting in fatalities, injuries or property damage which make the vehicle inoperable must contact a law enforcement officer.

There is no mention of the need for drivers involved in accidents to leave their vehicles in place following an accident. Nevertheless, this is the perception of the general public and apparently the police. This statute should be changed to reduce the number of secondary accidents that occur in the queue caused by the accident while disabled vehicles remain in the travel roadway. Although overall safety may be compromised, many insurance agents will advise drivers not to remove their vehicles because the drivers of the vehicles not at fault could ultimately be responsible for their own repairs.

A change to the existing Kentucky statutes would be desirable to allow a vehicle or any part of a vehicle load found standing on the shoulder of the freeway to be removed by the Louisville Division of Police or the Kentucky Transportation Cabinet to the nearest safe site off the highway. This removal could be performed by the agency with agency equipment or by a contractor. This could be accomplished by city tow truck, state equipment, or private towing company.

City of Louisville

According to the City of Louisville Ordinance 72.1, the operator of a vehicle involved in an accident is required to “stop immediately and ascertain the extent of damage and render such assistance as may be needed. City Ordinance 72.11 states that accidents that involve fatalities, injuries or property damage must be reported immediately. The policy of the Louisville Division of Police, according to the Division of Reporting Instructions and Procedures (DRIP), is that vehicles involved in an accident are to wait at the scene without moving their vehicles until a police officer arrives. The policy continues that the only way a police officer can fill out an accident report is if the officer is able to “formulate an opinion on an accident.” Otherwise, the officer must give the drivers a Kentucky Uniform Traffic Accident Report. This document does not tell which driver was at fault and therefore is not the choice of insurance agents. The DRIP also states that “the accident reporting policies” of the Louisville Division of Police “do not match the” state policies and that “Louisville Police Officers should follow the DRIP Manual” when there is a conflict.

The DRIP manual also contains specific policies for dealing with “Expressway Accident Investigation.” During the peak workday hours, the manual states that the officers should “note the presence (or absence) of all evidence and vehicle positions.” If it is a non-injury accident, the vehicles should be removed from the expressway to a site where the investigation may continue. If the vehicle is inoperable, it may remain on the shoulder of the expressway for up to six hours.

City of Louisville Ordinance 71.05 states that no vehicle may “remain standing in any street as to create an obstruction. ” This ordinance deals mostly with blockage of intersections. Section 77 of the Louisville Division of Police Manual on Policy and Procedures states that if a vehicle is unattended on the median, the officer may remove it immediately. If the vehicle is attended, the officer should help the motorist move to an emergency lane. The driver then has six hours to get the vehicle off the expressway. If this occurs during rush hour, the officer may have the vehicle towed to the nearest exit. The manual also encourages the quick removal of vehicles “to maintain the normal movement and flow of traffic.”

Indiana

Indiana Statute 8-23-2-4.1 states that the Indiana Department of Transportation is responsible for operation, construction, reconstruction, improvement, maintenance, and repairs of state highways.

The officers and employees of the police department have all necessary police powers to enforce the laws of Indiana for the regulation and use of vehicles, and for the protection of the highways of Indiana under statute 10-1-1-10. Through discussions with INDOT and the Indiana State Police, no statutes were found with regard to removal of vehicles or any part of a vehicle load found standing on the travel lanes or shoulders of the freeway.

A statute should be introduced in Indiana which would allow a vehicle or any part of a vehicle load found standing on the travel lanes or shoulder of the freeway to be removed by the Indiana State Police to the nearest appropriate (safe) site off the highway. This would require developing contracts with local wrecker companies or purchasing such equipment for use by the state police.

6.3 Example Ordinances and Policies

As part of this study, ordinances, policies and interagency agreements from other areas of the nation were reviewed for possible applicability to the I-65 Freeway Management System. Brief outlines are provided in this section, and examples are provided in Appendix D.

Arkansas Code 27-53-102 - Accident Procedure and Removal of Vehicles from the Roadway

According to Arkansas law, in the case of a non-injury accident, if the vehicles can be safely driven, they should be moved to a safe location off the roadway. The law states, “The driver shall remove his vehicle from the roadway, except that the driver may leave the vehicle in the roadway if the vehicle is disabled or there is a visible or apparent injury to a person.” In addition, “the removal of a vehicle from the roadway pursuant to this section shall not constitute an admission of liability nor a waiver of a claim for personal injury.”

Texas Traffic Law, Article IV, Section 39 - Accident Procedure and Removal of Vehicles from the Roadway

Texas Traffic Law states that when an accident only involves damage to a vehicle and when “an accident occurs on a main lane, ramp, shoulder, median or adjacent area of a freeway in a major metropolitan area and each vehicle can be normally and safely driven, each driver shall move his vehicle as soon as possible off the freeway main lanes, ramps, shoulders, medians and adjacent areas to a designated accident investigation site, if available, a location on the frontage road, the nearest suitable cross street or other suitable location to complete the requirements of Section 40, so as to minimize interference with freeway traffic. Any person failing to stop to comply with said requirements shall be guilty of” a misdemeanor.

Florida Traffic Law, Section 316.061 - Accident Procedure and Removal of Vehicles from the Roadway

Florida Traffic Law states that when an accident only involves damage to a vehicle or other property, the driver is required to stop where “every stop shall be made without obstructing

traffic more than necessary, and, if a damaged vehicle is obstructing traffic, the driver of such vehicle shall be make every reasonable effort to move the vehicle or have it moved so as not to block the regular flow of traffic.”

Interagency Agreement - Removal of Vehicles From Roadways Maryland State Highway Administration and the Maryland State Police

Whenever a road or lane is closed or partially blocked by an accident and traffic delays or safety problems may occur, the resident maintenance engineer or his representative, in cooperation with the police officer in charge, should reopen the roadway as soon as possible on an urgent basis. This recognizes that public safety is the highest priority and must be secured, especially if injuries or hazardous materials are involved. It is understood that damage to vehicles or cargo may occur as a result of clearing the incident on an urgent basis. While reasonable attempts to avoid such damage should be made, the highest priority is public safety. If materials being transported are involved, they shall be relocated as short a distance as possible, but not be placed so as to present a traffic hazard. The owner of the vehicle and/or cargo will be billed for the work. No attempt should be made to move hazardous/flammable or exploding materials without contacting proper authorities. Members of the state police will conduct their investigation in as expedient manner as possible, minimizing traffic delays. The state highway administration assumes liability for damage caused by clearing the roadway only if there is clear evidence that negligence was used. The liability would be no greater than they might expect from negligence etc. on the part of snow equipment operations

Interagency Agreement - Incident Management Program Houston Area Freeway Incident Management Program

This agreement between the State of Texas Department of Highways and Public Transportation, Harris County and the City of Houston recognizes that blockage of freeway lanes has a detrimental impact on the movement of traffic not only in the immediate vicinity of the blockage but also over a considerable portion of the freeway system and adjacent local streets. In the agreement, the parties agree to participate in and contribute to funding a freeway incident management program. The agreement documents the establishment of a Incident Management Plan, responsibilities for oversight of the program, establishment of a control center and establishment of a motorists’ assistance patrol.

Joint Operational Policy Statement California Department of Transportation and the California Highway Patrol

The joint policy statement states that “the Highway users’ interest is best served by both Departments closely cooperating and each having an understanding of both Departments’ jurisdictional responsibilities. ” The statement goes on to describe jurisdictional responsibilities regarding: traffic control, traffic accidents, removal of vehicles, adverse weather conditions and effects, spillage of commodities, among others. The authorization to move a vehicle of an injured party in a traffic accident is given exclusively to peace officers. Regarding highway

blockage, the immediate measures to insure the safe movement of traffic are the responsibility of the joint effort between the two departments. To insure full cooperation of the two parties, the Statement calls for operational boundaries to be established at the local level.

6.4 Procurement Methods

“Procurement policies developed for the design and construction of traditional highway projects have often proven ill suited to the acquisition of systems involving complex electronics and computer technologies.” [Traffic Control Systems, Operations and Maintenance - Expert Panel Report, March 10, 1992, pg. 4 - USDOT, FHWA].

An important element in the implementation of the I-65 Incident Management System is the method to be used for procurement. Several procurement techniques have been used throughout the country on related projects. These are outlined below, and a recommendation developed for the I-65 project.

Sole-Source: The basis for a sole source procurement is the documented existence of only one technical or cost-effective solution to the requirements of a particular project. The most common basis for sole-source procurements are the requirements for compatibility with existing equipment, so that system-wide interoperability can be maintained.

For an initial systemwide procurement, compatibility with existing equipment is not a factor, and sole-source procurement is not advisable or practical.

For later project phases, sole-source procurements will probably be necessary to maintain equipment compatibility for specific devices, such as CCTV camera controllers. Operating and maintenance problems caused by incompatible equipment are design and procurement issues for the initial system. Conversion or replacement of non-interoperable devices before the end of their useful life is an expensive penalty to be paid for lack of foresight.

Engineer/Contractor: This procurement method is the one typically used for highway projects. It is based on the concept that all critical system parameters can be fully specified and documented in a single set of contract documents (i.e., Plans, Specifications, and Estimates - PS & E package), that a single contractor is best suited to implement the project, and that the only criterion of significance for selecting the contractor is the initial bid price.

The extensive experience with this process for highway construction has resulted in a very rigid set of procedures and rules within most highway agencies, severely restricting the flexibility of system designers and implementers. “Existing procurement procedures utilized by state and local agencies were developed primarily for major construction projects and structured to minimize fraud. These procedures have often proven to be unduly cumbersome and counterproductive when applied to traffic control systems projects involving advanced technologies.” [Traffic Control Systems, Operations and Maintenance - Expert Panel Report, March 10, 1992, pg. 21 - USDOT, FHWA].

For a variety of reasons, the engineer/contractor approach is frequently ineffective for projects involving electronics, computers and communications equipment. Some of these reasons are:

- Electronics technology is changing too rapidly. A new generation of electronics equipment (computers, communications, software, etc.) is available every 18 months. With a minimal 3-year cycle from start of design to completion of construction, two generations of equipment will have evolved. The equipment can be obsolete before it is put into use.
- Initial low bid is not the most important discriminator of system success and total system cost. Operations costs, maintenance costs, training costs, equipment up-grade and compatibility, and related life-cycle costs are nearly always larger than initial procurement price.
- The complex nature of these projects is often beyond the experience and capability of traditional highway contractors, and other organizations are not familiar with highway agency procedures. Few contractors exist who have local knowledge and agency experience in roadway construction, building construction, cable installation and testing, electronics procurement and integration, computer systems acquisition, and software development.
- The ability to understand and fully specify a complex system involving computers, software, and human interactions is very limited. The end users of the system must define the operational requirements, but they usually do not have the experience needed to convert their needs into precise and unambiguous system specifications. Conversely, the analysts and software engineers who have to create the system do not understand the user's requirements. Techniques that emphasize early prototyping and interactive design produce a working system that best fulfills the system requirements.

“The hardest part of building a software system is deciding precisely what to build... No other part of the work so cripples the resulting system if done wrong. It is necessary for an extensive iteration between the client and the designer as part of the system definition. ” [Bugs in the Program, Problems in Federal Government Computer Software Development and Regulation - Staff Study by the Subcommittee on Investigations and Oversight, Committee on Science, Space and Technology -House of Representatives, 101st Congress, 2nd Session, USGPO, 1990, p. 7].

Thus, the assumption that we know enough about a project to be able to fully define its characteristics is invalid for these systems. However applicable the engineer/contractor approach is for traditional highway projects, it does not work well for projects involving advanced electronics/computer/software technologies.

Two-Step Approach: This method modifies the engineer/contractor technique by separating the technical evaluation step from the financial step. This approach provides an opportunity to reject proposals that do not meet the technical criteria for the project. This minimizes the risk of selecting a contractor whose bid is low, but who is not technically capable of performing the

work. It also insures that the technical merits of each proposal are fully considered prior to award of a contract, instead of during the “material submittal” stage of a traditional highway construction contract.

This approach does not address the issues of rapid changes in technology, the requirement to fully understand and specify the system needs at the beginning, the use of initial procurement cost as the only financial criterion, and the inherent complexity of these projects. Thus, while the two-step approach does solve some problems, it fails to address other critical issues.

Design/Build: In this approach, a single entity is selected to handle all the work associated with implementing the system. The design/builder is responsible for detail system design, procurement of all equipment, construction of all system elements, integration of the various sub-systems, and final system turn-up and operational cut-over. The fully functional system is then turned over to the operating agency.

A design/build concept simplifies the number of contracts and the steps associated with taking a system from concept to operations. This can be beneficial if the design/builder fully understands the project concept, and has the experience to successfully handle the full scope. Often the design/builder can use streamlined equipment purchase procedures, thereby speeding up the project schedule.

However, this approach limits the agency’s role to that of limited oversight and monitoring activities of the design/builder. This can be detrimental since the agency personnel with direct operational experience and needs are typically not involved with the detail design and thus cannot provide input and feedback during design and implementation. As noted above, this interaction is crucial to meeting the operational needs of the end users.

System Manager/System Integrator: This procurement method divides the project into several sub-projects for each of the various sub-systems, with the work overseen by a systems manager who administers each contract and is responsible for integrating the several sub-systems into an overall, operating system. The most effective structure for this approach is to use a moderate sized “design team” (no more than eight individuals), consisting of agency and system manager personnel.

The system manager converts the project plan into preliminary designs and defines sub-systems, develops PS&E packages for sub-systems, oversees bidding and award, supervises construction, selects and procures computer and communications hardware components, develops system software, integrates and tests sub-systems, and supervises operator training.

By assigning responsibility for total system success to the system manager, a single source of accountability and responsibility is defined. The involvement of agency personnel as part of the design team results in improved coordination and tighter cost controls. The agreement between the agency and the system manager is a negotiated contract, which can be more easily adapted as project needs are refined. This provides increased flexibility to meet the specific project requirements, when compared to the typical fixed price turnkey or design/build contracts.

This approach also provides for the selection of contractors with specific sets of skills for each of the sub-systems, for example one contractor to do the earthwork and install the conduit and another to integrate and test the communications electronics.

Recommendation: The system manager/integrator concept has been successfully used on several major traffic management and incident management systems. Other major industry segments, both private and public sector, use it to implement projects with similar elements of multi-discipline and advanced technology challenges. It is an approach that recognizes the complexity of these systems, especially when viewed from the context of traditional highway construction projects.

The system manager/integrator approach to system procurement and implementation is recommended. It provides the most flexibility, the greatest degree of control over technical features and system cost, and the ability to obtain an optimum mix of contracting resources for each segment of the project. It will create challenges for the agency, since the successful use of a system manager will require the agency to operate somewhat differently than it is accustomed to, but that is the fundamental reason for utilizing the service of the system manager.

6.5 System Start-Up Plan

The system start-up plan is an important component of final system design. It defines the key testing, documentation, warranty/support, and training procedures for initiating system operations. The objective is to provide for a smooth transition to the new system. Elements of a start-up plan are described below.

Software Acceptance Tests

The purpose of software acceptance testing is to verify the functional compliance of software to the related design specification. It is important that the required functionality of the software be clearly and completely defined in the software design specifications so that testing and ultimate use are consistent with system needs.

The order of testing begins with hardware and software sub-systems. Once each sub-system has been installed and tested individually by the contractor, the systems manager should integrate and test the software with the hardware. Tests should be designed in such a way as to aid in the isolation of sub-system problems. Each sub-system should be tested for proper operation in conjunction with the system software using command mixes and data rates which are representative of worst case loads expected in actual operation. Finally, an overall systems acceptance test should be performed.

System Acceptance Tests

The purpose of overall system acceptance testing is to provide verification that system-wide control and monitoring functions are operable to specification with no interference of one over

the other. Each test should include an action coupled with an expected result and a noted result. Again, command and data rates and volumes used in testing are to be representative of worst case expected system loads.

Partial Acceptance

Schedule may dictate testing prior to the integration of every sub-system. The use of specially modified controllers and/or specialized diagnostic software may facilitate testing and acceptance of the system. Specialized data and command inputs should allow testing under conditions closely approximating those in the final configuration.

Documentation

There are four basic types of documentation that should be supplied: As-built documentation, hardware documentation, software documentation, and operator manuals.

As-built documentation should include as-built drawings in CADD format, installation diagrams, wire lists, cabinet layout diagrams, cable interconnect layouts, cooling requirements, test results, and equipment maintenance records.

Hardware documentation should include reference manuals, user manuals, device programming manuals, engineering drawings and schematics, installation manuals, diagnostic manuals, fault isolation and troubleshooting guidelines, description of communication protocols, preventative maintenance procedures, and recommended spares list.

As a minimum, software documentation to be supplied includes source listings (including comments), data flow diagrams, high-level software logic flow diagrams, and data structure diagrams.

Operator manuals should include a glossary of terminology and typographical conventions, operational instructions for all interface devices, operation functions (equipment setup, program loading and booting, start-up and shutdown, system control commands, system monitoring, report generation, and data display), sample output formats for reports and CRT displays, list of trouble and malfunction indications, and data base descriptions showing input formats, generation procedures, output formats and edit procedures.

Transition to New System

Transition plans should include a schedule and order for activities, required operation and maintenance training, and final testing.

Operational Support/Warranty Period

The source of operational support and the warranty period of the system should be identified in the start-up plan. Problems diagnosed to be specific to a particular sub-system should be

referred to the contractor or vendor responsible for that sub-system. Problems related to integration should be resolved by the system manager integrator.

Operational Training

The purpose of operational training is to fully describe system functions relating to traffic system control and monitoring to the system operators and supervisors. Operational training should be provided using the operator manual as a reference in conjunction with hands-on exercises and demonstrations with live and simulated systems.

Maintenance Training

The purpose of maintenance training is to provide general system software maintenance requirements and procedures to the extent that system software engineers can make required modifications to system software to accommodate changes in system configuration and algorithm changes. This will involve detailed descriptions of software functions, their data flow, data formats, error and event reporting and relationship to other functions in the system software.

Maintenance training for specialized sub-systems such as VMS and CCTV is best provided by the equipment manufacturer or vendor. Arrangements should be made with the respective companies for required training.

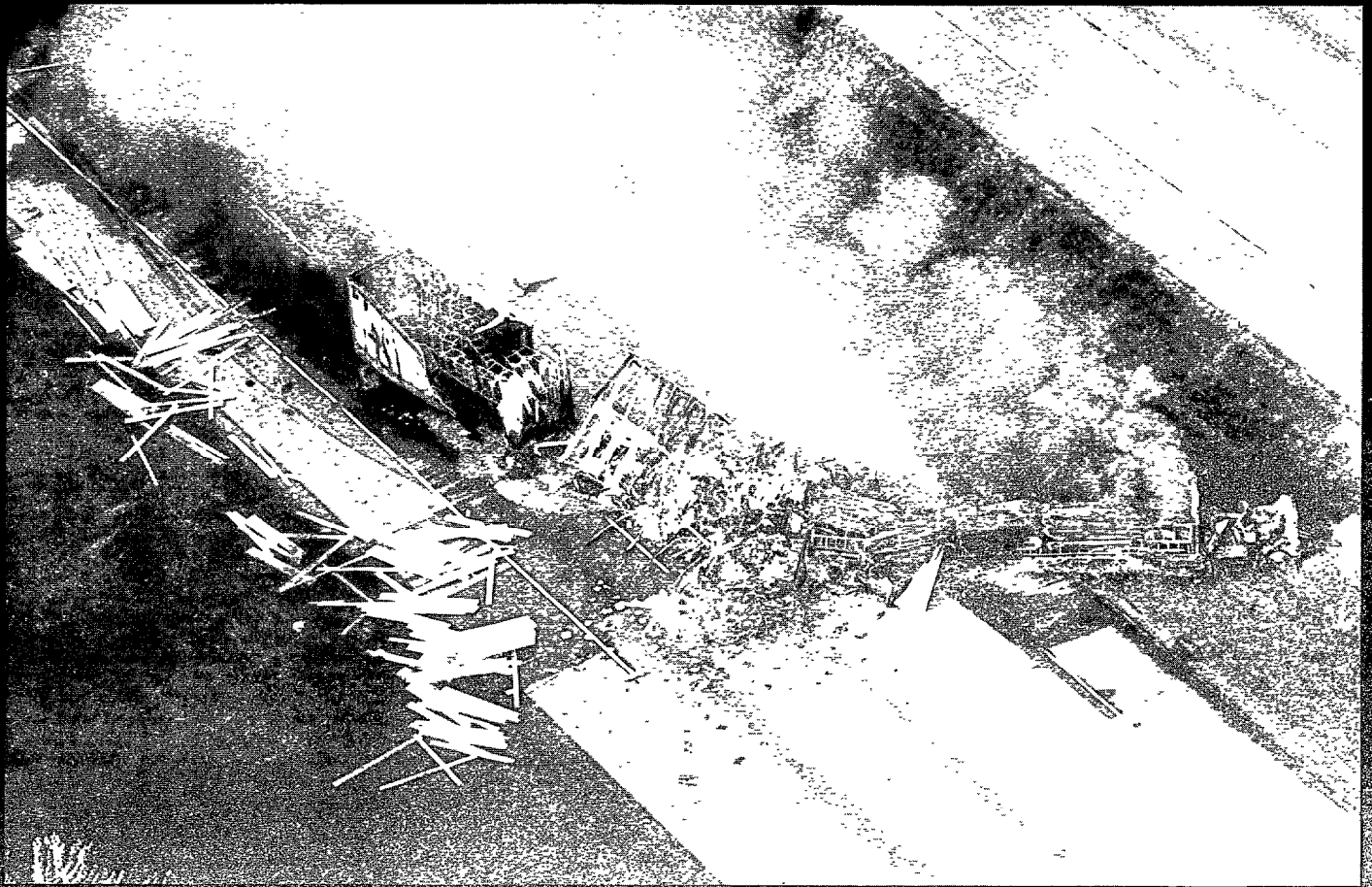
6.6 Operations Plan

Part 655.409 of Title 23 Code of Federal Regulations requires the development of an Operations Plan prior to the deployment of surveillance and control elements of an incident management plan. According to current guidelines, the Operations Plan is to be completed prior to project design completion and must be approved by FHWA prior to authorization of construction funding.

The Operations Plan will need to address needed legislation, system design, procurement methods, construction management procedures, acceptance testing, and system start-up. It will also need to include an operation and maintenance plan which is specific to the equipment to be installed.

The intent of the Operations Plan will be to clearly describe all significant system features and the means for installing and operating the system. An important element of the Operations Plan is the commitment of involved agencies to staff the system and fund its operation. Many of these issues must await design activities in order to provide an appropriate level of detail. Nevertheless, this report provides a foundation by addressing many of the elements to be ultimately included in the Operations Plan for the system.

APPENDICES



Source: The Courier-Journal

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Two tractor-trailer trucks collide on I-65. One truck containing pesticides causes the closure of the northbound lanes for 26 hours.